

REMARKS

In response to the Office Action mailed February 4, 2009, Applicants respectfully requests reconsideration. Claims 20-39 were previously pending in this application. Claims 20 and 33-39 have been amended. No claims have been canceled and no new claims have been added. The application is believed to be in condition for allowance.

Rejections under 35 U.S.C. §112

The Office Action rejects Claim 38 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action states that the phrase “of the or each,” is unclear. Applicants have removed the phrases “or each” and “at least one,” from Claim 38. Accordingly, withdrawal of the rejection of Claim 38 under 35 U.S.C. §112 is respectfully requested.

Summary of Example Embodiments

An example of one embodiment is described in Applicants' specification at paragraphs [0057] through [0060] and Figure 1. It should be appreciated that the description below is merely an example of one of many embodiments that fall within the scope of Applicants' claims.

Figure 1 illustrates a joint transform correlator 1 including an image production and capture device 8 having an image production portion 8a and an image capture portion 8b arranged in a common plane (paragraph [0057]). The image production portion 8a is pixilated and configured to display a reference image and a scene image in a side-by-side manner, thereby forming a joint image (paragraph [0058]). Light 17 which is passed through the image production and capture device 8 is directed to be incident on a concave curved mirror 10 (light 17a). Light 17b which is reflected from the mirror 10 is an interference pattern indicative of the Fourier transform of joint image data provided by the image production portion 8a (paragraph [0060]). Thus, Fourier optics are employed in the transformation of a joint image.

Rejections Under 35 U.S.C. §102

The Office Action rejects Claims 20-21, 23-25, 27-32 and 38 under 35 U.S.C. §102 as being anticipated by O'Callaghan, U.S. Patent No. 6,369,933 (O'Callaghan). Applicants respectfully traverse this rejection.

O'Callaghan illustrates an optical correlator used in the comparison of a reference image to an input image (abstract). Operational steps of the optical correlators are described in column 9, lines 29 through 47, in conjunction with Figure 4 (relied upon by the Office Action). In operation, polarized laser light 140 is directed to a spatial light modulator (SLM) 104, which displays an input image. A lens 120, located above the SLM 104, projects a Fourier transform of light reflected from SLM 104 onto a polarizing mirror combination 128 and 130. The light is thereafter directed towards a second SLM 106, which includes a filter image. Light reflected from the second SLM 106 is the product of the filter image and the Fourier transform of the input image.

Amended Claim 20 recites in part “applying reference image data and scene image data to the image production device so that scene and reference image data are displayed side-by-side as the joint image, and the optical device is disposed to receive light from the joint image thereby to form a joint power spectrum from the joint image at the image capture device,” where the underlined represents what has been added by way of amendment. Support for the amendment may be found in at least paragraphs [0060], [0068], and [0069] of Applicants' specification. It should be appreciated that independent Claims 33 and 39 have been amended in a similar manner.

O'Callaghan does not teach a scene and reference image displayed side-by-side as a joint image, where an optical device, such as a curved mirror, is employed to receive light from the joint image to form a joint power spectrum. O'Callaghan instead teaches using a first lens 120 to provide a Fourier transform of a *single* image. Nowhere in O'Callaghan is the use of a joint image described. O'Callaghan instead employs the use of an input image and a filter image which are illuminated *separately* through the use of SLMs 104 and 106, respectively. Thus, amended Claim 20 patentably distinguishes O'Callaghan. Claims 21, 23-25, and 27-32 depend from amended Claim 20 and therefore patentably distinguish O'Callaghan for at least the same reasons.

As should be appreciated from the above description of Claim 20, amended Claim 38 also patentably distinguishes O'Callaghan. Specifically, O'Callaghan fails to teach "illuminating a joint representation of the input image and the reference image with coherent light to provide a first light beam; and, passing the first light beam to an optical device disposed to provide a second image at a plane, the second image being a Fourier transform of the input image and reference image," as is recited in amended Claim 38. Accordingly, withdrawal of the rejections under 35 U.S.C. §102 is respectfully requested.

Rejections Under 35 U.S.C. §103

The Office Action rejects Claim 22 under 35 U.S.C. §103(a) as being unpatentable over O'Callaghan in view of Freyre U.S. Patent No. 5,987,188. The Office Action also rejects Claim 26 under 35 U.S.C. §103(a) as being unpatentable over O'Callaghan. The Office Action further rejects Claims 33-34 and 39 under 35 U.S.C. §103(a) as being unpatentable over O'Callaghan in view of Okuyama U.S. Patent Application No. 2001/0050366 (Okuyama). The Office Action rejects Claims 35-36 under 35 U.S.C. §103(a) as being unpatentable over O'Callaghan in view of Okuyama and further in view of Pu *et al.*, U.S. Patent Application No. 2001/0007592 (Pu). The Office Action also rejects Claim 37 under 35 U.S.C. §103(a) as being unpatentable over O'Callaghan in view of Okuyama and Pu, and further in view of Yamazaki *et al.*, U.S. Application No. 2001/0019130.

Neither of the Freyre, Okuyama, Pu, or Yamazaki references remedy the deficiencies of O'Callaghan. Specifically, O'Callaghan taken in any combination of Freyre, Okuyama, Pu, and/or Yamazaki fails to teach a "joint transform correlator ... [configured] to provide a distribution indicative of a Fourier transform of the joint image on an image capture device," or an "integrated circuit comprising [a] spatial light modulator ... arranged to provide reference image data and scene image data displayed side-by-side as a joint image," as is recited in amended Claim 33 and amended Claim 39, respectively. Thus, amended Claim 33 (from which Claims 34-37 depend) and amended Claim 39 patentably distinguish any combination of the prior art of record. Claims 22 and 26 depend from amended Claim 20 and therefore patentably distinguish the prior art of record for at least the same reasons as described above in relation to

amended Claim 20. Accordingly, withdrawal of the rejections under 35 U.S.C. §103 is respectfully requested.

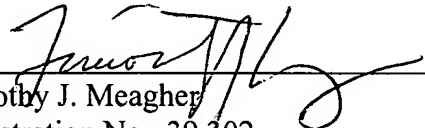
CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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